OAH Docket No. 3-1302-17366-1
Governor's Tracking No. AR 821

STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS

FOR THE BOARD OF TEACHING

In the Matter of the Proposed Rules Relating to Science Licensure, Minnesota Rules, Chapter 8710.

REPORT OF THE ADMINISTRATIVE LAW JUDGE

Administrative Law Judge Steve M. Milhalchick conducted a hearing for Administrative Law Judge Kathleen D. Sheehy concerning the above rules beginning at 9:30 a.m. on May 15, 2007, in Room 14 of Conference Center A, Minnesota Department of Education, 1500 Highway 36 West, Roseville, Minnesota. The hearing continued until all interested persons, groups and associations had an opportunity to be heard concerning the proposed rules.

The hearing and this Report are part of a rulemaking process governed by the Minnesota Administrative Procedure Act.[1] The legislature has designed the rulemaking process to ensure that state agencies have met all of the requirements that Minnesota law specifies for adopting rules. Those requirements include assurances that the proposed rules are necessary and reasonable, that they are within the agency's statutory authority, and that any modifications that the agency may have made after the proposed rules were initially published are not impermissible substantial changes.

The rulemaking process includes a hearing when a sufficient number of persons request that a hearing be held. The hearing is intended to allow the agency and the Administrative Law Judge reviewing the proposed rules to hear public comment regarding the impact of the proposed rules and what changes might be appropriate. The Administrative Law Judge is employed by the Office of Administrative Hearings, an agency independent of the Board of Teaching (Board).

Bernard E. Johnson, Assistant Attorney General, 445 Minnesota Street, Suite 1800, St. Paul, Minnesota 55101-2134, appeared at the rule hearing on behalf of the Board of Teaching. The members of the Board's hearing panel were Karen Balmer, Executive Director; and Board members Jim Bartholomew, Lindsey Cartwright and Asad Zaman. Forty members of the public signed the hearing register and 25 members of the public spoke at the hearing.

The Board of Teaching received a substantial number of written comments on the proposed rules before the hearing. After the hearing, the record remained open for ten days, until May 25, 2007, to allow interested persons and the Board an opportunity to submit written comments. Following the initial comment period, the record remained open for an additional seven days to allow interested persons and the Board the

[1] Minn. Stat. §§ 14.131 through 14.20 (2006).

opportunity to file a written response to the comments submitted. The OAH hearing record closed on June 1, 2007. All of the comments received were read and considered.

SUMMARY OF CONCLUSIONS

The Board has established that it has the statutory authority to adopt the proposed rules and that the rules are necessary and reasonable.

Based upon all the testimony, exhibits and written comments, the Administrative Law Judge makes the following:

FINDINGS OF FACT

Nature of the Proposed Rules

1. This rulemaking proceeding involves revision of the rules governing licensure of science teachers. Specifically, the proposed rule would permit licensed science teachers of grades 9-12 or 7-12, who have at least three years of science teaching experience, to add an additional content area of science licensure at the grade 9-12 level by providing evidence of passing the appropriate PRAXIS II science content exam for the desired science discipline of licensure: either chemistry, earth and space science, life science, or physics.[2]

2. The Board maintains that the proposed rule is needed because Minnesota has a shortage of appropriately licensed science teachers, and this shortage is projected to increase given the Minnesota legislature's 2006 enactment of a law requiring all Minnesota students to take either physics or chemistry in order to graduate by the 2013-2014 school year.

3. In developing the proposed rule, the Board sent a Request for Comments to all superintendents of Minnesota Public Schools, deans and chairs of all Minnesota teacher preparation programs, Minnesota educational professional organizations, Minnesota Science Teachers Association, members of the Minnesota Senate and House education committees, and all individuals and groups on the Board's e-mail and rulemaking lists. The comment period ran from July 7, 2006, to September 15, 2006, and the Board received 50 comments during this period.[3] The Board also sought input from an ad hoc advisory committee, which included representatives of Education Minnesota, Science Teachers Association, Minnesota Association of Student Councils, Minnesota School Board Association, Minnesota Association of School Administrators, Minnesota Association of Secondary School Principals, Minnesota Rural Education Association, Minnesota Department of Education, and Minnesota Association of Colleges of Teacher Education.[4]

[2] PRAXIS examinations are developed and administered by Educational Testing Service (ETS) for use by state boards in licensing teachers in various subject areas.
[3] Ex. B.
[4] SONAR at 3 and 4; Ex. J.

Procedural Requirements of Chapter 14

4. The Board members met on May 12, 2006, a quorum was present, and the Board adopted a Certificate of the Board of Teaching Authorizing Resolution for the proposed rule.[5]

5. By letter dated June 16, 2006, the Board requested that the Office of Administrative Hearings give prior approval of its Additional Notice Plan. In addition to the notice plan, the Board also filed a copy of its Request for Comments, and a copy of the proposed authorizing resolution.[6]

6. In a letter dated June 22, 2006, Administrative Law Judge Beverly Jones Heydinger approved the Board's Additional Notice Plan.[7]

7. On July 10, 2006, the Board published a Request for Comments Regarding Proposed Minnesota Rule 8710.4770 Which Would Permit Currently Licensed 9-12 or 7-12 Science Teachers, Licensed under Minnesota Rule 8710.4750, to Become Licensed in an Additional Science Content Area by Passing the Appropriate PRAXIS II Content Test. The Request indicated that the Board was proposing permitting licensed science teachers of grades 9-12 or 7-12, who have at least three years of science teaching experience, to add an additional content area of science licensure at the 9-12 level by providing evidence of passing the required PRAXIS II science content exam for either chemistry, earth and space science, life science, or physics. The Request for Comments was published at 31 State Register 43.[8]

8. By letter dated February 26, 2007, the Board requested that the Office of Administrative Hearings schedule a hearing and assign an Administrative Law Judge. The Board also filed a proposed Dual Notice, a copy of the proposed rules and a draft of the Statement of Need and Reasonableness (SONAR).[9]

9. In a letter dated March 2, 2007, Administrative Law Judge Kathleen Sheehy approved the Board's Dual Notice.[10]

10. On March 20, 2007, the Board mailed the Dual Notice of Hearing to all persons and associations who had registered their names with the agency for the purpose of receiving such notice and to all persons identified in the additional notice plan. The Dual Notice stated that a copy of the proposed rules was attached to the notice.[11]

11. On March 20, 2007, the Board sent a copy of the Dual Notice and SONAR by inter-office mail to the legislators specified in Minn. Stat. § 14.116.[12]

12. On March 20, 2007, the Board mailed a copy of the SONAR to the Legislative Reference Library.[13]

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[5] Ex. A.
[6] Ex. B.
[7] Ex. C.
[8] Ex. E; Minn. Stat. § 14.101.
[9] Ex. P.
[10] Ex. Q.
[11] Ex. T.
[12] Ex. U.

13. On March 26, 2007, the proposed rule and the Dual Notice of Hearing were published at 31 State Register 1315.[14]

14. On the day of the hearing the following documents were placed in the record:

- Certificate of the Board of Teaching Authorizing Resolution (Ex. A);
- Request for approval of Additional Notice Plan (Ex. B);
- Approval of Additional Notice Plan dated June 22, 2006 (Ex. C);
- Administrative Rule Preliminary Proposal Form (Ex. D);
- The Request for Comments published July 10, 2006, at 31 SR 43 (Ex. E);
- Certificates of Mailing Request for Comments, July 6, 2006 (Ex. F);
- Preliminary Drafts of Rule from Revisor of Statutes' Office (Ex. G);
- Notification of No Change to Rule from Revisor of Statutes' Office dated August 26, 2006 (Ex. H);
- A copy of the proposed rule with Revisor's approval dated August 29, 2006 (Ex. I);
- Board's invitation letter to potential advisory group members, meeting agenda and roster (Ex. J);
- A copy of the SONAR (Ex. K);
- Request for Commissioner of Finance review of rule dated February 13, 2007 (Ex. L);
- Proposed Rule and SONAR form (Ex. M);
- Governor's Office Approval of SONAR (Ex. N);
- Department of Finance evaluation of proposed rule (Ex. O);
- Letter from Board to Chief Administrative Law Judge Raymond Krause requesting approval of Dual Notice and assignment of an Administrative Law Judge dated February 26, 2007 (Ex. P);
- Letter from Administrative Law Judge Kathleen Sheehy approving Board's Dual Notice dated March 2, 2007 (Ex. Q);
- Certificate of the Board of Teaching Authorizing Resolution (Ex. R);
- Copy of the Dual Notice of Hearing (Ex. S);
- Certificates of Mailing Dual Notice of Hearing on March 20, 2007 (Ex. T);
- Certificate of Mailing the Notice and the SONAR to Legislators on March 20, 2007 (Ex. U);

[13] Ex. V.
[14] Ex. W.

- Certificate of Mailing the SONAR to the Legislative Reference Library on March 20, 2007 (Ex. V);
- The Dual Notice of Hearing as published in the State Register at 31 SR 1315 (Ex. W);
- Board of Teaching's website posting of Dual Notice (Ex. X);
- Stripped copies of proposed rules (Ex. Y);
- Copies of public comments and requests for hearing on the proposed rules received by the Board before the hearing date (Ex. Z);
- Board of Teaching's Notice of Hearing to Those Who Requested a Hearing, dated April 27, 2007 (Ex. AA);
- Certificate of sending by e-mail, on April 30, 2007, a Notice of Hearing to all persons who requested a hearing (Ex. BB);
- Memo to Board of Teaching staff members from Executive Director Karen Balmer dated May 10, 2007 (Ex. CC);
- Written comments on the proposed rule received by the Board after the comment period (Ex. DD);
- Board of Teaching's list of witnesses for Rule hearing (Ex. EE);
- Written testimony of Board's Executive Director (Ex. FF);
- Written statement of John Melick, interim director of Educational licensing for the Department of Education, in support of proposed rules (Ex. GG);
- Additional letters received by the Board in support of the proposed rules (Ex. HH); and
- Written comments received at the hearing (Exs. 1-12).

15. Written comments received after the hearing were placed in the record in a folder marked as Ex. 13. The Board's response was also placed in the record in a folder marked as Ex. II.

Additional Notice

16. Minnesota Statutes §§ 14.131 and 14.23, require that the SONAR contain a description of the Board's efforts to provide additional notice to persons who may be affected by the proposed rules. The Board submitted an additional notice plan to the Office of Administrative Hearings, which reviewed and approved it by letter dated June 22, 2006. In addition to notifying those persons on the Board's rulemaking list, the Board represented that it would also provide notice to the following groups and individuals:

- All superintendents of Minnesota Public Schools;
- Deans and Chairs of Minnesota Teacher Preparation Programs in Postsecondary Education Institutions;

- Minnesota professional organizations related to education;
- Members of the Minnesota House and Senate Education Committees;
- Minnesota Science Teachers Association;
- Minnesota Senate and House Education Policy and Finance Chairs; and
- All individuals on the Board's e-mail list.

Statutory Authorization

17. The Board is authorized pursuant to Minn. Stat. § 122A.09, subd. 4 "to adopt rules to license public school teachers and interns subject to chapter 14." In addition, Minn. Stat. § 122A.09, subd. 9, provides that "The Board of Teaching may adopt rules subject to the provisions of chapter 14 to implement sections 122A.05 to 122A.09, 122A.16, 122A.17, 122A.18, 122A.20, 122A.21, and 122A.23."

18. The Administrative Law Judge finds that the Board has the statutory authority to adopt the proposed rules.

Regulatory Analysis in the SONAR

19. The Administrative Procedure Act requires an agency adopting rules to consider seven factors in its Statement of Need and Reasonableness. The first factor requires:

> **(1) A description of the classes of persons who probably will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule.**

The Board lists the following as the classes of persons who will be primarily affected by the rules:[15]

High school students;

Current secondary science teachers;

Local superintendents and administrators; and

Minnesota colleges and universities that currently offer secondary science preparation programs.

The Board states that science teachers wishing to pursue this licensure option will bear the majority of the costs, including the registration fee ($40) to take the PRAXIS II content exam and the exam fee ($75). In addition, these science teachers will have to pay the state's $57 application processing fee. According to the Board, there could be additional costs to these science teachers in the form of time spent studying or money spent on materials or coursework to prepare for the exam.[16]

[15] SONAR at 4.
[16] SONAR at 4.

The Board states that colleges and universities may also bear some costs related to the proposed rule in that fewer currently licensed science teachers may enroll in a college or university preparation program for an additional licensure given this new licensure option. However, the Board points out that the proposed rule will have no effect on those students enrolling in approved preparation programs to obtain their initial licensure as new science teachers.[17]

The Board states that Minnesota students will benefit from the proposed rule because the rule will allow for a greater number of high school students to be taught by a licensed science teacher. In addition, the Board states that current science teachers will benefit from the proposed rule because they will have the option of adding a field of licensure without enrolling in a long or costly preparation program. This is particularly beneficial to science teachers in rural areas where the shortage of science teachers is more acute and it is often difficult to find a preparation program within a reasonable distance. The Board also states that the proposed rule will benefit superintendents and administrators because they will not have to devote as much time to advertising and recruiting new science teachers if their existing staff members are able to pass the content exam to become licensed in an additional field. The Board also claims that colleges and universities will benefit from the proposed rule because it will provide them an opportunity to develop new programs to help interested teachers prepare for the content knowledge exam. Finally, the Board states that it will benefit because the proposed rule will likely decrease the number of requests it receives for Personnel Variances.[18]

(2) The probable costs to the Agency and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues.

The Board states that the only costs that it will incur related to the proposed rule are those associated with the rulemaking process. Otherwise, the Board maintains that the projected costs relating to implementing and enforcing the new rule are negligible. The current application fee of $57 applies to first-time licenses as well as additional fields of licensure being added to an existing license. The Minnesota Department of Education's Educator Licensing and Teacher Quality division processes all teacher license applications, and the Board states that the application fee should offset any increase in workload resulting from the proposed rule. While the proposed rule may generate additional application fees, the Board anticipates the effect on state revenues will be insignificant.[19]

(3) The determination of whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule.

The Board states that this proposed licensure option is minimally intrusive for both teachers and administrators. The Board maintains that, while it is difficult to project

[17] SONAR at 5.
[18] SONAR at 5.
[19] SONAR at 5.

how much time and money an individual will decide to spend to prepare for the content knowledge exam, it will presumably be less than what he or she would spend on enrolling in a traditional preparation program. Accordingly, the Board suggests that the proposed rule is the least costly and least intrusive method of achieving "additional flexibility in staffing and local autonomy."[20]

(4) A description of any alternative methods for achieving the purpose of the proposed rule that were seriously considered by the agency and the reasons why they were rejected in favor of the proposed rule.

The Board states that it considered the following alternatives:

- General Science Licensure: In March of 2005, the Board passed a resolution to pursue rulemaking to create a grade 9-12 General Science license in addition to the four content-specific licenses currently available. Prior to the decision, the Board had convened a group of stakeholders including licensed Minnesota science teachers, representatives from Minnesota higher education institutions that prepare science teachers, Minnesota Department of Education staff, and representatives from Minnesota education organizations. This group met over the course of two years to determine how to address the state's science teacher shortage while both maintaining high standards in science licensure and allowing for flexibility to respond to the shortage. The proposal to develop a 9-12 General Science license was the outcome of this group's discussions. However, in the end, the Board rejected this proposal due to concerns that such a license would not meet the requirement under the federal No Child Left Behind (NCLB) law that teachers be "Highly Qualified" in each of the core academic subject areas that they teach.[21] In order to be considered "Highly Qualified" under NCLB, a teacher must either have earned an academic major in the content area or have passed a "rigorous state test" of subject knowledge and teaching skills in the content area.[22]
- Licensure via Portfolio Process: The 2004 Legislature directed the Board of Teaching to develop teacher licensure assessment alternatives. As a result, the Board created the Licensure via Portfolio process (Minn. Rule 8700.7620), which allows an individual to meet Minnesota licensure standards through academic preparation, professional development, teaching or related experiences, or other professional activities. Since December 2004, about ten percent of the 103 approved portfolios have been in one of the grade 9-12 science licensure areas. The Board states that while it will continue to encourage the use of the portfolio process for both new teachers and teachers seeking additional licensure in an unrelated field (i.e., a health teacher seeking licensure in mathematics), it

[20] SONAR at 5.
[21] SONAR at 3 and 6.
[22] SONAR at 7; Ex. II (Board's responsive comments, May 25, 2007, Ex. H attachment.)

believes that there are "transferable skills and pedagogy within the sciences," and that a licensed and experienced science teacher with a "foundational knowledge of the subject matter as measured by the exam" should be able to succeed in a new area of science.[23]

- Non-Renewable License: As of the fall of 2006, teachers are now eligible for a Non-Renewable License. This license is given to individuals who are already licensed in one area, have met the "Highly Qualified" status, and are enrolled in a licensure program. This license allows these teachers to teach out of their field of licensure for up to three years while they pursue licensure. Again, the Board determined that content knowledge is most important and that such knowledge may be demonstrated by passing a content knowledge exam.[24]
- Proposal to Amend Rule to Include Tenure Requirement: The Board considered amending the proposed rule language to require, in addition to the three years of science teaching experience, that teachers be tenured before qualifying for the licensure by exam option. In the end, the Board rejected including a tenure requirement because: (1) many charter schools do not have tenure systems and would have no way to meet this criteria; and (2) there are instances when effective teachers are not tenured due to circumstances, such as budgetary constraints, that have nothing to do with their teaching ability.[25]
- Proposal to Amend Rule to Limit License to a One-Year Provisional License: The Board considered a proposal to amend the proposed rule to allow teachers to earn an additional license via passage of a content knowledge exam but to limit that license to a one-year provisional license rather than the standard five-year license. In addition, the proposal required that at the end of the one year period, issuance of a permanent license would be contingent upon confirmation from the school district that the teacher proved to be competent in the new licensure area. The Board rejected this proposal because it believed the proposed process would be logistically cumbersome and subjective.[26]
- Targeted Licensure Programs: There are a handful of higher education institutions that currently offer science licensure programs in an alternative format. These programs have been designed to accommodate current science teachers by, for example, offering courses during the summer months. The Board supports these programs, but believes that are too few of them to meet the immediate need for science teachers, particularly in rural and other regions of the state where the need is greatest. As a result, the Board believes that the rule as proposed is still necessary.[27]

[23] SONAR at 6.
[24] SONAR at 6.
[25] SONAR at 6.
[26] SONAR at 6.
[27] SONAR at 6 and 7.

(5) The probable costs of complying with the proposed rules.

The Board estimates that the administrative costs associated with processing the new licensure applications will be offset by the fees. Science teachers pursuing this route to additional licensure will have to pay $115 in registration and exam fees[28] and $57 for the state processing fee.[29]

(6) The probable costs or consequences of not adopting the proposed rule, including those costs borne by individual categories of affected parties, such as separate classes of governmental units, businesses, or individuals.

The Board asserts that by not adopting the proposed rule, Minnesota schools, particularly in rural areas, will continue to experience difficulty in finding licensed science teachers and will likely experience increased shortages. The Board points out that Minnesota is already experiencing a shortage of science teachers, with only 25% of students taking physics and 50% of students taking chemistry. Given that the Minnesota legislature passed a law in 2006 requiring all students to take physics or chemistry by the 2013-2014 school year, this shortage of science teachers will increase. In addition, the Board states that enrollment is declining in the vast majority of Minnesota school districts. This decline in enrollment will compound the shortage problem because it will make it more likely that a science teacher will need to teach more than one area of science in order to maintain a full-time position.

The Board also asserts that failure to adopt the proposed rule will result in Minnesota continuing to be out of compliance with NCLB requirements. The Board points out that in order to be considered "Highly Qualified" under the NCLB, a teacher must either have earned a major in the content area or have passed a rigorous state test in the content area. Currently, all teachers who are teaching out of their field of licensure by special permission of the Board, such as a Personnel Variance, are not considered "Highly Qualified." This creates a disparity between the state licensure system and federal requirements. Moreover, the Board notes that special permissions were not intended to be a long-term solution to the shortage of licensed science teachers.

The Board further suggests that the proposed rule is necessary because of the likelihood that in the future students will be tested on their science content knowledge for purposes of meeting NCLB requirements. Currently, Minnesota K-12 Academic Standards require science to be taught to all students, but only the life science standards are being tested, and those test results are not being used for the purpose of meeting NCLB requirements. However, the Board asserts that it may be possible that the federal government will eventually require that science tests be the "high stakes" tests used for NCLB compliance purposes. Further, the Board contends that it is likely that there will be increased pressure to have students tested in other science areas beyond the life sciences. The Board maintains that the existing licensure preparation programs for science teachers are insufficient to meet these future needs. In 2005, for

[28] $40 for registration fee and $75 for exam fee.
[29] SONAR at 7.

example, 172 individuals took the life science content knowledge exam; 53 individuals took the chemistry content exam; 34 individuals took the earth and space science content knowledge exam; and 26 individuals took the physics content knowledge exam. The Board contends that if the rule is not adopted, the shortage of science teachers in Minnesota will persist.

(7) An assessment of any differences between the proposed rules and existing federal regulation and a specific analysis of the need for and reasonableness of each difference.

The Board states that the proposed rule is designed to better align state science licensure with federal requirements under NCLB. According to the Board, there is currently a discrepancy between the state's practice of allowing a licensed teacher (in any subject) to teach outside of his or her licensure area and the federal requirements relating to content knowledge. To be "Highly Qualified" under NCLB, a teacher must either have a major in the subject area or have passed a rigorous state test of subject knowledge and teaching skills. The Board contends that this proposed rule will create a means by which science teachers can comply with both state licensure requirements and federal content knowledge requirements.

Performance Based Rules

20. The Administrative Procedure Act[30] also requires an agency to describe how it has considered and implemented the legislative policy supporting performance based regulatory systems. A performance based rule is one that emphasizes superior achievement in meeting the agency's regulatory objectives and maximum flexibility for the regulated party and the agency in meeting those goals.[31]

21. The Board states that the proposed rule is consistent with the Board's goal of maintaining high licensure standards while providing flexibility in the licensing process to assure that public school students have fully licensed teachers. The Board contends that while the proposed rule will provide additional licensure flexibility, it will also maintain the integrity of the system by: (1) requiring a demonstration of content knowledge through a test that the Board currently uses as an assessment tool for science licensure; and (2) requiring three years of teaching science to demonstrate pedagogical competency.

Consultation with the Commissioner of Finance

22. Under Minn. Stat. § 14.131, the Agency is also required to "consult with the commissioner of finance to help evaluate the fiscal impact and fiscal benefits of the proposed rule on units of local government."

23. The Board consulted with its Department of Finance representative, Executive Budget Officer Britta Reitan, and in a memorandum dated February 22, 2007,

[30] Minn. Stat. § 14.131.
[31] Minn. Stat. § 14.002.

Ms. Reitan concluded that the proposed rule will have little fiscal impact on local units of government.[32]

24. The Administrative Law Judge finds that the Board has met the requirements set forth in Minn. Stat. § 14.131 for assessing the impact of the proposed rules, including consideration and implementation of the legislative policy supporting performance-based regulatory systems.

Analysis Under Minn. Stat. § 14.127

25. Effective July 1, 2005, under Minn. Stat. § 14.127, the Board must "determine if the cost of complying with a proposed rule in the first year after the rule takes effect will exceed $25,000 for: (1) any one business that has less than 50 full-time employees; or (2) any one statutory or home rule charter city that has less than ten full-time employees."[33] The Board must make this determination before the close of the hearing record, and the Administrative Law Judge must review the determination and approve or disapprove it.[34]

26. The Board has determined that the cost of complying with the proposed rule in the first year after it takes effect will not exceed $25,000 for any one small business or small city.[35] As discussed in the regulatory factors above, the costs associated with the proposed rule will be borne by science teachers in the form of testing and processing fees.

27. The Administrative Law Judge finds that the agency has made the determination required by Minn. Stat. § 14.127 and approves that determination.

Rulemaking Legal Standards

28. Under Minn. Stat. § 14.14, subd. 2, and Minn. Rule 1400.2100, a determination must be made in a rulemaking proceeding as to whether the agency has established the need for and reasonableness of the proposed rule by an affirmative presentation of facts. In support of a rule, an agency may rely on legislative facts, namely general facts concerning questions of law, policy and discretion, or it may simply rely on interpretation of a statute, or stated policy preferences.[36] The Board prepared a Statement of Need and Reasonableness (SONAR) in support of the proposed rules. At the hearing, the Board primarily relied upon the SONAR as its affirmative presentation of need and reasonableness for the proposed rule. The SONAR was supplemented by comments made by Board representatives at the public hearing and in written post-hearing submissions.

29. The question of whether a rule has been shown to be reasonable focuses on whether it has been shown to have a rational basis, or whether it is arbitrary, based upon the rulemaking record. Minnesota case law has equated an unreasonable rule

[32] Ex. O.
[33] Minn. Stat. § 14.127, subd. 1 (2005).
[34] Minn. Stat. § 14.127, subd. 2 (2005).
[35] SONAR at 9.
[36] *Mammenga v. Department of Human Services*, 442 N.W.2d 786 (Minn. 1989); *Manufactured Housing Institute v. Pettersen*, 347 N.W.2d 238, 244 (Minn. 1984).

with an arbitrary rule.[37] Arbitrary or unreasonable agency action is action without consideration and in disregard of the facts and circumstances of the case.[38] A rule is generally found to be reasonable if it is rationally related to the end sought to be achieved by the governing statute.[39]

30. The Minnesota Supreme Court has further defined an agency's burden in adopting rules by requiring it to "explain on what evidence it is relying and how the evidence connects rationally with the agency's choice of action to be taken."[40] An agency is entitled to make choices between possible approaches as long as the choice made is rational. Generally, it is not the proper role of the Administrative Law Judge to determine which policy alternative presents the "best" approach since this would invade the policy-making discretion of the agency. The question is rather whether the choice made by the agency is one that a rational person could have made.[41]

31. In addition to need and reasonableness, the Administrative Law Judge must also assess whether the rule adoption procedure was complied with, whether the rule grants undue discretion, whether the Board has statutory authority to adopt the rule, whether the rule is unconstitutional or illegal, whether the rule constitutes an undue delegation of authority to another entity, or whether the proposed language is not a rule.[42]

Analysis of the Proposed Rules

General

32. In this matter, the Board has proposed only one rule. The rule would permit currently licensed science teachers of grades 9-12 or 7-12, who have at least three years of science teaching experience, to add an additional content area of science licensure by passing the PRAXIS II content exam for the desired science discipline of licensure (chemistry, earth and space science, life science, or physics). The qualifications for becoming licensed under this new examination process are described in subpart 2, and it is this portion of the rule that received significant comment.

Discussion of Proposed Rule

33. The Board received many public comments opposing the proposed rule. The Minnesota Science Teachers Association (MnSTA), the Minnesota Association of Colleges for Teacher Education (MACTE), faculty and administrators in the science and education departments at the University of Minnesota, members of the science faculty at Carleton College, members of faculty in the Education Department at St. Olaf College, the Minnesota Earth Science Teachers Association, members of the faculty in the Science Education Department at St. Cloud State University, members of the

[37] In re *Hanson*, 275 N.W.2d 790 (Minn. 1978); *Hurley v. Chaffee*, 231 Minn. 362, 367, 43 N.W.2d 281, 284 (1950).
[38] *Greenhill v. Bailey*, 519 F.2d 5, 19 (8th Cir. 1975).
[39] *Mammenga*, 442 N.W.2d at 789-90; *Broen Memorial Home v. Department of Human Services*, 364 N.W.2d 436, 444 (Minn. Ct. App. 1985).
[40] *Manufactured Housing Institute*, 347 N.W.2d at 244.
[41] *Federal Security Administrator v. Quaker Oats Co.*, 318 U.S. 218, 233, 63 S. Ct. 589, 598 (1943).
[42] Minn. R. 1400.2100.

science faculty at Augsburg College, members of the science faculty at Hamline University, members of the faculty in the Education Department at the College of St. Benedict/Saint John's University, members of the science faculty at Winona State University, members of the education and science faculty at Metropolitan State University, members of the education faculty at Minnesota State University Mankato, Education Minnesota, and the SciMathMN Board of Directors were just a few of the groups and individuals that opposed the proposed rule. Primarily, these groups and individuals are opposed to the Board's proposal to use a single content exam as an alternative route for additional licensure. They believe the PRAXIS II exam is an inadequate measure of competence, that it fails to measure pedagogical knowledge and laboratory skills and safety, and that it covers only a limited amount of the science content material required by the Board of Teaching's licensure standards. While most of these commenters acknowledge the need for more licensed science teachers and understand the difficulties faced by school districts in trying to recruit and retain qualified science teachers, they maintain that the proposed rule is a poor solution to the teacher shortage problem and that it will compromise the State's commitment to providing Minnesota students with highly qualified teachers.[43]

34. The Board also received several comments in support of the rule. Many of these comments came from superintendents of out-state and rural districts who see the rule as giving them the flexibility they need in hiring and retaining science teachers.[44] These individuals emphasized the difficulty they have in attracting and retaining appropriately licensed science teachers. Moreover, several out-state and rural school officials noted that with declining enrollment, they realistically need only one full-time science teacher to teach in multiple areas of licensure. They point out that most licensed science teachers are not willing to accept part-time work.[45]

35. The majority of the comments received addressed four primary concerns: (1) the appropriateness of licensing by PRAXIS II exam and the adequacy of the exam as a measure of competence; (2) laboratory safety; (3) the need for the proposed rule given existing alternative licensure programs; and (4) the proposed rule's potential contravention of existing standards. The comments addressing each of these concerns will be discussed below.

Use of the PRAXIS II Exam

36. Many commenters argued that the PRAXIS II test cannot measure advanced conceptual understanding of content knowledge, safety expertise, classroom experience, or the pedagogical knowledge unique to the specific science discipline that is essential to be an effective science teacher. These commenters contend that substituting a test for the expansive coursework needed to gain the understandings outlined in the Board's Teaching Standards is a step backward in teacher quality. In addition, many pointed out that the proposed rule would allow a teacher who passes the PRAXIS exam to teach physics, without ever having to take a physics course.[46]

[43] Ex. Z; Public Hearing Exs. 3, 4.
[44] Exs. Z, DD, and HH.
[45] Exs. DD and HH.
[46] Ex. Z.

37. Nancy Nutting, Executive Director of SciMathMN, a statewide non-profit education and business coalition advocating for quality K-12 science, mathematics and technology education, submitted public and written comments on behalf of the SciMathMN Board of Directors in opposition to the proposed rule. SciMathMN objects to using the PRAXIS II test as the sole indicator of teacher quality in awarding licensure to teach a specific science content area. SciMathMN believes the PRAXIS II test is not an equivalent measure of knowledge, skill and understanding, and it asserts that it only covers 40 percent of the science content material required by the Board of Teaching's licensure standards. In addition, SciMathMN argues that pedagogical content knowledge, which is not tested by PRAXIS II, is equally critical to student success and necessary for ensuring quality instruction. According to Ms. Nutting, having science instruction provided by teachers who know not only the content in physics and chemistry but also how to teach that content to a wide variety of learners and to provide safe laboratory or field experiences, increases the likelihood that all students will have access to strong instruction in all areas of science. Finally, SciMathMN argues that weakening the requirements for teacher licensure will lead to an unequal educational system in which larger school districts can continue to maintain staff that is more thoroughly prepared to teach specific areas of science, and smaller school districts will only attract or retain those teachers who pass the content test.[47]

38. Similar to the above comments, the Minnesota Science Teachers Association (MnSTA) expressed concern that the proposed rule will reduce the qualifications of science teachers by providing licenses based only on the PRAXIS test. MnSTA argues that to be licensed, science teachers should have a deep understanding of science teaching practices specific to the science discipline. According to MnSTA, the PRAXIS II content test only provides a narrow assessment of some of the content knowledge needed for that license and does not evaluate the deep understanding of unifying principles of the discipline, understandings of misconceptions that block student learning, and methods of assessing student understanding.[48]

39. One commenter, John C. Deming, Assistant Professor of Chemistry at Winona State University, also pointed out that the PRAXIS II test is almost entirely algorithmic in nature, which means that the knowledge required to answer the questions correctly is memorized without necessarily having to rely on a conceptual understanding of the concept being assessed. According to Dr. Deming, learning algorithms as the primary mode of problem solving is contrary to the goals of presenting chemistry as a process of scientific inquiry and promoting students' intellectual development.[49]

40. All of the commenters opposed to the proposed rule maintain that if it is enacted, it will dilute the quality of Minnesota's science teachers and directly affect the quality of science education for Minnesota students.[50] Education Minnesota, for example, commented that the proposed rule sacrifices quality and high standards in the name of convenience and expediency. According to Education Minnesota, the PRAXIS

[47] Public Hearing Ex. 3.
[48] Public Hearing Ex. 4.
[49] Ex. Z.
[50] Ex. Z; Public Hearing Ex. 1.

II test at best determines minimum competency related to content knowledge and should not be used as the sole arbiter of fitness for granting a license to teach.[51]

41. In a post-hearing comment, Russell Hobbie, Professor Emeritus of Physics at the University of Minnesota, expressed his concern that the PRAXIS II test cannot test critical thinking, laboratory set-up, operation, and repair, and the ability to think one or two steps ahead of the students – the skills that a high school physics teacher needs on the job. Dr. Hobbie asserts that easing the requirements for licensure hides, rather than solves, the teacher shortage problem.[52]

42. State Representative Gene Pelowski, the current chair of the Minnesota House of Representatives Committee on Government Operations, Reform, Technology and Elections, submitted post-hearing comments in opposition to the proposed rule. Representative Pelowski points out that there have been several failed attempts over the last few legislative sessions to direct the Board of Teaching to adopt the rule that is now being proposed. Representative Pelowski asserts that these failed legislative attempts indicate a general lack of support for the rule. He recommends that the Board withdraw the proposed rule until the issue of whether passage of a knowledge-based test is equivalent to successful completion of a series of academic courses as an indicator of teacher quality is more thoroughly examined.[53]

43. Jennifer Docktor, Ph.D. candidate in Physics at the University of Minnesota, suggested that the proposed rule be revised to require the following additional qualifications: intensive preparation in the subject matter and content-specific teaching methods, a practicum experience with a master teacher, and ongoing mentorship with other teachers in the specific science discipline.[54] Other commenters also recommended that the proposed rule be amended to require that candidates also complete college coursework in content-specific teaching methods.[55]

44. In its response to the many comments that the PRAXIS test is an inappropriate and inadequate measure of competence, the Board conceded that the test cannot measure an entire body of knowledge. However, the Board maintains that the PRAXIS test can capture a representative sampling, and it insists that an individual must have a strong background in the content area in order to succeed on the test. In addition, the Board points out that approximately 20 states, including Minnesota, use the PRAXIS II science content knowledge test in their licensing procedures. Seventeen of these states use it in some form as a means of adding areas of licensure. Moreover, the Board contends that it is "widely accepted" that pedagogical competence (i.e., assessment, lesson planning, classroom management, questioning techniques, etc.) is transferable across the different science subject areas.[56]

45. The Board also responded to Representative Pelowski's comments regarding the legislative "rejection" of previous attempts to direct the Board to adopt

[51] Public Hearing Ex. 8.
[52] Ex. 13.
[53] Ex. 13.
[54] Public Hearing Ex. 10.
[55] Ex. Z.
[56] Ex. II (Board's responsive comments, May 25, 2007).

rules permitting licensure by PRAXIS exam. The Board explained that in the 2006 Legislative Session, a bill was introduced (HF 2689) that would have required the Board to adopt a licensure by exam rule similar to the one now proposed. The bill was included in the House K-12 Omnibus bill (HF 4040), and it was passed out of the K-12 Education Finance Committee on a voice vote. However, the Omnibus bill never made it out of the Taxes Committee, and it eventually died. The Board contends that it is inaccurate to assert that because the Legislature did not act on the K-12 Omnibus bill, the intent was to reject licensure by examination. The Board asserts that each year hundreds of bills are never enacted into law for a variety of reasons and that it is misleading to claim that the legislative inaction should be interpreted as rejection of the proposed rule.[57]

Laboratory Safety

46. Many commenters expressed specific concern about the proposed rule's lack of a laboratory training requirement for candidates pursuing this route to licensure. These commenters assert that science teachers need supervised laboratory experience to both correctly and safely perform these duties and that the proposed rule's failure to require such training and experience may place students at risk.[58]

47. Several persons also asserted that the proposed rule's assumption that a teacher of one science discipline is qualified to teach another discipline by merely passing a content exam is misguided.[59] Professor Paul Crowell of the University of Minnesota's School of Physics and Astronomy pointed out that an undergraduate physics major at the University of Minnesota typically takes five semesters of physics laboratory, including three at the advanced level. These advanced laboratories include: (1) a course on the major experiments of modern physics; (2) a course on modern electronics and computer programming as applied in a laboratory setting; and (3) a course in which students undertake an independent project. According to Dr. Crowell, all colleges and universities have similar (or more rigorous) requirements. In the absence of this type of practical training, Dr. Crowell questions how a high school teacher could teach physics laboratory skills safely and effectively. Dr. Crowell contends that "it will be extremely difficult for teachers to convey the meaning and significance of modern physics without ever having carried out for themselves the experiments on which modern physics is based."[60]

48. Wayne Woley, Professor Emeritus of Chemistry at Macalester College, expressed concern that in a prior version of the PRAXIS II chemistry test only two of the 140 multiple choice questions addressed chemical safety. Dr. Woley believes that, without hours of supervised laboratory experience, persons gaining certification in chemistry via the PRAXIS II exam method will be a potential hazard in the chemical laboratory.[61]

[57] Ex. II.
[58] Ex. Z.
[59] Public Hearing Ex. 10.
[60] Public Hearing Ex. 5.
[61] Ex. 13.

49. In response to concerns that the lack of a laboratory training requirement in the proposed rule may place students at risk, the Board points out that high school science laboratories are highly regulated by a number of regulatory bodies, including OSHA, the Center for Disease Control, the National Institutes of Health, and the Minnesota Department of Education. These laboratories do not operate as independent entities with little oversight. The Board notes, for example, that schools are required to establish a Safety Committee to provide oversight of science laboratory regulations, and to develop and update annually a Chemical Hygiene Plan that complies with OSHA Laboratory Safety Standards. Moreover, according to the Board, teachers who have gone through a preparation program in any of the science areas have received basic laboratory safety training as well as laboratory preparation specific to their licensure area. Minnesota Rule 8710.4750 governs science licensure, and all teacher candidates receive with their initial license preparation to address standards relating to required safety equipment, storage, use and disposal of chemicals, and safety procedures during supervised science learning experiences.[62]

Alternative Licensure Programs

50. Many commenters maintain that the proposed rule is not necessary because of existing alternative licensure programs. These commenters suggest that instead of adopting the proposed rule, the Board should continue to support and encourage the development and expansion of alternative licensure programs at Minnesota State and private educational institutions to meet the need for additional licensed science teachers.[63] The Minnesota Earth Science Teachers Association (MESTA), for example, contends that rigorous, convenient, and fully funded licensure programs already exist at Hamline University and other institutions, and it maintains that these certified licensure programs are effective, standards-based, quality-controlled pathways to licensing science teachers. Instead of the proposed rule, MESTA argues that more programs like the one at Hamline University are needed to ensure that properly prepared science teachers are in Minnesota schools.[64]

51. Currently, Hamline University offers two additional licensure programs for Minnesota science teachers teaching on a variance. These programs, Physics Accreditation for Science Education (PhASE) and Chemistry Curriculum for Additional Licensure (ChemCAL), combine summer experiences, online learning, and a practicum experience in which the candidate is observed by a licensed teacher. Both programs are grant supported, resulting in little financial cost to participants.[65] The PhASE program is funded through the Math and Science Partnership Program for Minnesota as part of a grant from the Minnesota Science Teachers Education Project (MnSTEP) and is administered by the Minnesota Department of Education. The 2007 PhASE program will involve 20 teachers in an intensive 10-day graduate-level multi-topic physics course at Hamline University in the summer; a combination mentorship/practicum, and online program during the 2007-08 school year; and a final 10-day physics course in summer

[62] Ex. II.
[63] Public Hearing Ex. 3, 8.
[64] Public Hearing Ex. 1.
[65] Public Hearing Ex. 3.

2008. By the end of summer 2007, 37 teachers will have received a physics teaching license through the PhASE Project.[66]

52. The Minnesota Board of Teaching also has the "portfolio process" described above, which allows teachers to earn licensure in an additional discipline. The portfolio process allows teachers to demonstrate their qualifications for additional licensure by providing evidence of meeting the teaching standards through course work, professional development activities and teaching experience.[67] In addition, several MnSCU institutions offer on-line and summer courses designed to allow current teachers to obtain licensure in other science areas in two years or less.[68]

53. Lee Schmitt, Professional Development Coordinator at Hamline University's Graduate School of Education, opposes allowing teachers to "test into licensure." As the director of PhASE and ChemCAL at Hamline University, Mr. Schmitt argues that more standards-based, quality-controlled licensure programs such as the ones offered at Hamline are needed. If the proposed rule is approved, Mr. Schmitt predicts that colleges will begin graduating more biology majors in licensure programs because those teachers will know they can just "test in" to other licenses after three years. Without the deep understanding of concepts and the laboratory experience required by advanced coursework to meet the Board of Teaching Standards, Mr. Schmitt believes many of these science teachers will begin teaching high school students without the conceptual understanding they need.[69]

54. Education Minnesota also argues that school districts can do more sharing of available science teachers to meet the need for teachers, raise salaries to encourage more teachers to get the preparation needed for additional licensure, and offer scholarships to take online or on-campus coursework. According to Education Minnesota, the teacher shortage requires creativity, not lowering of standards.[70]

55. In contrast to the above comments, however, many school administrators from small out-state and rural school districts asserted that the proposed rule is necessary to fill the growing need for appropriately licensed science teachers. For example, Paul Brownlow, superintendent and principal of Chokio-Alberta Public Schools (ISD No. 771), commented that his district has had to request personnel variances to fill the science teacher position.[71] Currently, the 7-12th grade science teacher is responsible for teaching earth science, life science, physical science, biology, chemistry and physics. The variance process has allowed the school district to retain this teacher, who is not licensed in every science discipline. However, if the proposed rule is not adopted, Superintendent Brownlow states that the school will face the very difficult task of finding a properly licensed teacher once their current science teacher's variance has expired.[72]

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[66] Public Hearing Ex. 2.
[67] Public Hearing Exs. 4, 9.
[68] Ex. Z; Public Hearing Ex. 3 and 9.
[69] Ex. Z.
[70] Public Hearing Ex. 8.
[71] Personnel variances are available to allow a teacher to teach outside of his or her area of licensure for up to three years under Minn. Rule 8710.1400.
[72] Ex. Z.

56. Michael Bergevin, Principal of Red Lake County Central High School in northern Minnesota, similarly commented that his small rural school has a very difficult time of even attracting science teachers to interview for a position. He states that he typically ends up hiring someone with the most common certification (life science) and then writes a variance so that that teacher can teach the subjects needed at the beginning of the school year.[73]

57. Dr. Craig Olson, Principal of Prior Lake High School, commented about his recent attempt to hire a part-time earth science teacher. After posting the position, he received only one application from someone who had an earth science teaching license. This person declined to accept the offer because she wanted a full-time job. Another candidate declined the position because she was unable to find any colleges in the area that offered the necessary coursework to obtain the earth science license outside of the regular school day/year. As a result, the school ended up hiring someone who was willing to take undergraduate courses during the school day to fulfill the licensure requirements. Dr. Olson supports the proposed rule and believes that science teachers with three years experience have adequate training in instructional technique and laboratory experience to be appropriately licensed upon passing the PRAXIS content exam.[74]

58. Gregory Wyum, a science teacher at Dawson-Boyd, a rural high school west of Montevideo, submitted written comments in support of the proposed rule. Mr. Wyum teaches 8th grade earth science and 10th grade biology. He does not have a license in earth science and has been teaching the subject for seven years with a temporary license and variance. Mr. Wyum explained that to teach full-time at a small school with declining enrollment, it is necessary to teach more than one science discipline. According to Mr. Wyum, he would need a leave of absence, financial support, and an additional licensure program within 100 miles of his home in order to obtain the requisite licensure in earth science and continue to support his family. Mr. Wyum urges adoption of the proposed rule to provide rural teachers like him the opportunity to keep their jobs without creating undue hardship on them or the schools. Mr. Wyum believes the PRAXIS test will allow him to demonstrate his knowledge of the content and his existing license and teaching experience are adequate to demonstrate his knowledge of science classroom pedagogy.[75]

59. Minnesota State Representatives Sondra Erickson and Mark Buesgens submitted written comments in support of the proposed rule. Representatives Erickson and Buesgens, former vice-chair and chair of the Minnesota Legislature's Education Policy and Reform Committee, maintain that the rule is needed because of the critical shortage of science teachers in Minnesota. In fact, Representatives Erickson and Buesgens recommend that the proposed rule not require that candidates have three years of science teaching experience. They point out that by not requiring a certain number of years of teaching science, school districts will have an even larger pool of

[73] Ex. DD.
[74] Ex. Z.
[75] Ex. DD.

candidates to choose from, and the need for variances and temporary licenses will decrease.[76]

60. The Minnesota Department of Education also submitted written comments in support of the proposed rule. The Department similarly recommends that the Board not require that candidates pursuing this licensure have three years of science teaching experience. The Department maintains that by requiring teachers to hold a Minnesota license and pass the PRAXIS II test, teachers will have evidenced both pedagogical and content mastery. The Department also pointed out that 17 other states allow teachers to add endorsements thorough the passage of a content exam. The comments were submitted and signed by Commissioner Alice Seagren, Deputy Commissioner Chas Anderson, Assistant Commissioner Karen Klinzing, and Interim Licensing Director John Melick.[77]

61. In addition, some commenters in support of the proposed rule questioned the necessity of requiring separate licensure for each science discipline and recommended instead that the Board of Teaching pursue a General Science licensure so that licensed science teachers could teach in all science areas.[78]

62. Finally, two persons in favor of the proposed rule submitted post-hearing comments recommending that the rule be amended to permit licensed science teachers of grades 7-12 to obtain a General Science licensure for grades 5-8 by passing the Middle School PRAXIS exam. Jim Zupfer, who teaches life science to students in grades 7-12, argues that it does not make sense to allow teachers to gain additional licensure by exam to teach higher level physics and chemistry to high school students, but not to teach more basic science concepts to younger students.[79]

63. The Board maintains that the proposed rule is necessary because of the critical shortage of licensed science teachers in Minnesota. The Board states that this shortage is demonstrated by the small number of graduates currently produced by teacher preparation programs in the science areas as well as data collected in the Minnesota Teacher Supply and Demand Report.[80] The shortage tends to be more pronounced in rural Minnesota. In addition, the Board asserts that the demand for science teachers will increase given the Minnesota legislature's recent enactment of a law requiring all Minnesota high school students to take either Physics or Chemistry in order to graduate by the 2013-2014 school year. Finally, the Board notes that 66 percent of all Minnesota school districts are currently experiencing declining enrollments. According to the Board, this decline in enrollment compounds the teacher shortage problem because it makes it more likely that a science teacher will need to teach more than one area of science in order to maintain a full-time position. The Board contends that for all of these reasons, the proposed rule, which will allow experienced teachers to gain additional licensure by passing the PRAXIS exam, is necessary.[81]

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[76] Ex. DD.
[77] Ex. DD and GG.
[78] Ex. DD.
[79] Ex. 13.
[80] This report is required by Minn. Stat. § 127A.05, subd. 6.
[81] SONAR at 1-2; Ex. FF.

64. In response to comments that the rule is not needed because alternative licensure programs exist, the Board reiterated that Minnesota faces a tremendous shortage of science teachers, which will continue to compound each year. The Board insists that, while the development of alternative licensure programs is encouraging, these programs will not solve the shortage problem because of their limited capacity and the financial and time commitment required of participants. The Board points out, for example, that the PhASE and ChemCAL programs at Hamline University are limited to 20 participants per year per program. And, with the exception of the PhASE and ChemCal programs, all of the licensure programs require a sizeable financial commitment. For teachers in small schools or rural districts who need to be licensed in multiple areas, these licensure programs are a costly endeavor. Similarly, earning licensure in all of the areas will require a commitment of several years. The Board states that it does not believe that the proposed rule and the alternative licensing programs are mutually exclusive. The Board supports the alternative licensure programs, but believes there are too few of them to meet the immediate need for science teachers, particularly in rural and other regions of the state. As a result, the Board believes that the rule as proposed is still necessary.[82]

65. With respect to the comment that the Board of Teaching should pursue a General Science licensure, the Board explained that in 2005 it did explore a General Science license that would have allowed a teacher to teach any of the science areas in grades 9-12. This would not have replaced the four current areas of licensure for grades 9-12, but would have created a new licensure option that would allow a teacher to teach in any of the four areas. However, largely due to concerns raised regarding whether this type of license would meet the requirement under the NCLB that teachers be "Highly Qualified," the Board decided not to pursue this option.[83]

66. The Board did not respond to the comments recommending that the proposed rule be amended to permit licensed grade 7-12 science teachers to obtain a General Science licensure for grades 5-8 by passing the Middle School PRAXIS exam.

Potential Contravention of Existing Standards

67. Dr. Richard Shields, Professor and Chair of the Physics Department at Winona State University, commented that the proposed rule permits a pathway to licensure that ignores the standards that the Board of Teaching has required of all teaching training programs. For example, the physics teaching certification has more than 70 standards that a teaching program must meet, and many of these require laboratory work. Dr. Shields opposes allowing teachers licensed in one science discipline to simply take a multiple choice exam to become licensed in another discipline without performing laboratory work to satisfy the Board of Teaching standards.[84]

68. Dr. Theodore Hodapp, Professor of Physics at Hamline University, submitted post-hearing comments in opposition to the proposed rule. Dr. Hodapp was part of a team of experts assembled by the Board of Teaching that drafted the physics

[82] Ex. II.
[83] Ex. FF.
[84] Ex. Z.

licensure standards back in the 1990's. Dr. Hodapp states that he and the other members of the team developed the standards to reflect multiple representations of deep conceptual and practical knowledge in the field. According to Dr. Hodapp, the standards were designed precisely to allow an assessment instrument to be developed. Dr. Hodapp believes the PRAXIS II test does not follow these principles and that the Board's attempt to provide two inconsistent paths for teachers to become licensed is inappropriate and undermines the current standards.[85]

69. A few commenters opposed to the proposed rule noted that the PRAXIS II test is the property of Educational Testing Service (ETS), and they asserted that there will be no way for the Board to know how well or if the content of the test aligns with the Board of Teaching licensure standards.[86]

70. One commenter, Kate Rosok, contends that the proposed rule violates Minnesota Rule 8710.4750, subps. 4, 5, 6, and 7, by circumventing the requirements of the subject matter standards for chemistry, earth and space science, life science, and physics, that candidates for licensure are required to fulfill. Specifically, these provisions require that candidates for licensure complete a preparation program that includes demonstration of knowledge and skills related to the particular science subject area.[87]

71. A few commenters expressed concern that the proposed rule would allow teachers to teach Advanced Placement (AP) and International Baccalaureate (IB) courses without the recommended qualifications. The College Board AP Chemistry Course Description Guide, for example, states that "[i]f the objectives of a college-level general chemistry course are to be achieved, instruction should be done by a teacher who has completed an undergraduate major program in chemistry including at least a year's work in physical chemistry."[88]

72. In response to the concerns about the validity of the exam and whether it conforms to Board of Teaching Standards, the Board offered an explanation of its standard process for evaluating and approving tests for state use. According to the Board, its standard process for all tests consists of a panel of Minnesota content experts, both from the K-12 system and from higher education, who validate the test for state use and recommend a passing score. The Board insists that this process does comply with the licensure examination requirements of Minnesota Rule 8710.0500, and that each of the four science tests (biology, chemistry, earth & space science, and physics) were determined to be "aligned with" Board of Teaching standards. The Board explained further that once the test is shown to align with state standards, and a state panel of content experts has determined the relevancy of the items on the proposed test, the Board establishes the qualifying score for test-takers. A formal standard setting procedure is followed using information from the validation study, as well as national and state performance data for each test. The Board then sets the required qualifying score for licensure for each test. The Board periodically reviews the

[85] Ex. 13.
[86] Ex. Z.
[87] Ex. Z.
[88] Ex. 13 (emphasis added).

performance on all licensure tests and has the authority to adjust the required score. The Board asserts that based on this process, each of the four PRAXIS II science tests (biology, chemistry, earth & space science, and physics) was found to be aligned with the Board of Teaching standards.[89]

73. The Board also asserts that because the proposed rule is based on passing a rigorous state test (the PRAXIS exam), any teacher licensed under this rule will meet the "Highly Qualified" requirement of NCLB. In order to be considered "Highly Qualified" under NCLB, a teacher must either have earned an academic major in the content area or have passed a "rigorous state test" of subject knowledge and teaching skills in the content area.[90]

74. The Board did not respond to the concern that the proposed rule would allow teachers to teach Advanced Placement (AP) and International Baccalaureate (IB) courses without having completed an undergraduate major in the science discipline as is recommended by the College Board.

75. After reading and considering all of the comments, the Administrative Law Judge finds that the Board has demonstrated that the proposed rule is needed and reasonable. As stated above, an agency is entitled to make choices between possible approaches as long as the choice made is rational. It is not the role of the Administrative Law Judge to determine which policy alternative presents the "best" approach, since doing so would invade the agency's policy-making discretion. The question for the Administrative Law Judge is rather whether the choice made by the agency is one that a rational person could have made.[91]

76. The Administrative Law Judge found the concerns expressed by those who opposed the rule to be quite persuasive, particularly those comments addressing the potential risk to students of eliminating the requirement that teachers have supervised laboratory experience in chemistry and physics; however, these concerns do not compel the conclusion that the proposed rule is arbitrary or irrational. While the rule is fairly criticized for taking a short-sighted and rather expedient approach to a serious long-term problem, a rational person faced with few satisfactory alternatives could make such a choice. The proposal to allow teachers with three years of science teaching experience to obtain additional licensure by examination is a policy choice that is legitimately within the Board's discretion.

77. The Board has shown that there is a need for the proposed rule (the shortage of licensed science teachers) and that the proposed rule is rationally related to the end sought to be achieved. Because the Board has the statutory authority to adopt the rule and has complied with the rule adoption procedure, and because the rule is not illegal or unconstitutional, the Administrative Law Judge concludes that the Board has demonstrated the need for and reasonableness of the proposed rule.

78. By concluding the rule is needed and reasonable, the ALJ does not intend to preclude the Board from revising the proposed rule to make the licensure

[89] Ex. II.
[90] Ex. II (Board's Responsive Comments, May 25, 2007, attachment Ex. H).
[91] *Federal Security Administrator v. Quaker Oats Co.*, 318 U.S. 218, 233, 63 S. Ct. 589, 598 (1943).

requirements more rigorous, as suggested by some commenters. Revisions aimed at making the licensure requirements more rigorous would not necessarily make the rule substantially different from that originally proposed.[92]

Based upon the foregoing Findings of Fact, the Administrative Law Judge makes the following:

CONCLUSIONS

1. The Board of Teaching gave proper notice of the hearing in this matter.

2. The Board has fulfilled the procedural requirements of Minn. Stat. § 14.14 and all other procedural requirements of law or rule.

3. The Board has demonstrated its statutory authority to adopt the proposed rule and has fulfilled all other substantive requirements of law or rule within the meaning of Minn. Stat. §§ 14.05, subd. 1, 14.15, subd. 3, and 14.50 (i) and (ii).

4. The Board has documented the need for and reasonableness of its proposed rule with an affirmative presentation of facts in the record within the meaning of Minn. Stat. §§ 14.14, subd. 2, and 14.50 (iii).

5. Any Findings that might properly be termed Conclusions and any Conclusions that might properly be termed Findings are hereby adopted as such.

Based upon the foregoing Conclusions, the Administrative Law Judge makes the following:

RECOMMENDATION

IT IS HEREBY RECOMMENDED that the proposed rule be adopted.

Dated this 2nd day of July 2007.

/s/ Kathleen D. Sheehy
KATHLEEN D. SHEEHY
Administrative Law Judge

[92] Minn. Stat. § 14.05, subd. 2 (a modification does not make a proposed rule substantially different if "the differences are within the scope of the matter announced … in the notice of hearing and are in character with the issues raised in that notice," the differences "are a logical outgrowth of the contents of the … notice of hearing and the comments submitted in response to the notice," and the notice of hearing "provided fair warning that the outcome of that rulemaking proceeding could be the rule in question.")

NOTICE

The Board must make this Report available for review by anyone who wishes to review it for at least five working days before the Board takes any further action to adopt final rules or to modify or withdraw the proposed rules. If the Board makes changes in the rules, it must submit the rules, along with the complete hearing record, to the Chief Administrative Law Judge for a review of those changes before it may adopt the rules in final form.

When the rule is filed with the Secretary of State by the Office of Administrative Hearings, the Board must give notice to all persons who requested that they be informed of the filing.